

rotation of the earth on its axis are at least premature, until the theories have been revised with a unit of time freed from changes of adopted constants, which are at present inextricably mixed up with any effects which would result from a change in the time of rotation of the earth on its axis.

II. "On the Atomic Weight of Glucinum (Beryllium)." By T. S. HUMPIDGE, Ph.D., B.Sc. Communicated by Professor FRANKLAND, F.R.S. Received March 20, 1883.

(Abstract.)

In this paper the author shows that no conclusions with respect to the atomic weight of glucinum can be drawn from analogy of its compounds with those of other metals, and that this long-disputed question can only be decided by the specific heat of the metal or by the vapour-density of some of its volatile compounds. Two determinations of the specific heat have been made by Professor E. Reynolds and by M. Nilson, the former of whom obtained a result of about 0.6, and the latter only about 0.4. The probable inaccuracies in Professor Reynolds' apparatus are pointed out, and it is shown that his metal was probably impure.

The author has prepared metallic glucinum from the chloride, the vapour of which was passed over sodium contained in iron boats in a glass tube. A metal was thus obtained which had the composition:—

Gl	93.97
Gl ₂ O ₃	4.71
Fe	1.32
Si	traces.
	100.00

and was probably the purest yet prepared.

The specific heat was determined by a modification of Regnault's method of mixtures, using electrical appliances to avoid the necessity of an assistant. Three determinations of the specific heat of silver in water, made to test the apparatus, gave the following results:—

I	0.05677
II	0.05568
III	0.05553
Mean.....	0.05600

and with a mean error of 1 per cent. The specific heat of metallic

glucinum was determined in turpentine, of which the specific heat was found to be 0·4231, and with the following results :—

I	0·4326
II	0·4264
III	0·4357

Mean..... 0·4316

and with a mean error of 0·8 per cent. Making a correction for the impurities contained in the metal, its true specific heat would be 0·4453, whence if the atomic weight is 13·65, the atomic heat becomes 6·08. This must, therefore, be the true atomic weight, and not two-thirds of this, or 9·1.

The number found by Nilson was somewhat lower than this (0·4079), and the above results may be slightly too high, firstly from hygroscopic moisture, and secondly from heat produced when the liquid was absorbed by the porous metal. About 0·66 gramme of the metal was used for the determinations, and it was compressed to a compact disk in a steel mortar.

The author is continuing the research.

- III. "On a New Crinoid from the Southern Sea." By P. HERBERT CARPENTER, M.A., Assistant Master at Eton College. Communicated by W. B. CARPENTER, C.B., M.D., F.R.S. Received March 15, 1883.

(Abstract.)

Among the collections of the late Sir Wyville Thomson, a small *Comatula* has recently been discovered which was dredged by the "Challenger" at a depth of 1,800 fathoms in the Southern Sea. Although it is unusually small, the diameter of the calyx being only 2 millims., the characters presented by this form are such as to render it by far the most remarkable among all the types of recent Crinoids, whether stalked or free. The name proposed for it is *Thaumatocrinus renovatus*.

It has only five arms, and in this respect resembles *Eudiocrinus*. But the basals, instead of becoming transformed into a rosette as in that genus, persist on the exterior of the calyx and form a closed ring of relatively large plates, which rest upon the centrodorsal. They support a ring of ten plates, five of which, alternating with the basals, bear the arms and are therefore the radials. These radials, however, do not meet one another laterally; for they alternate with five plates slightly smaller than themselves, which rest upon the